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MARSHALL, GERSTEIN & BORUN LLP
233 S. WACKER DRIVE, SUITE 6300
SEARS TOWER
CHICAGO, IL 60606

EXAMINER

NGUYEN, HIEP

ART UNIT PAPER NUMBER

2816

DATE MAILED: 11/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/736,731

Applicant(s)

SONG, HO UK

Examiner

Hiep Nguyen

Art Unit

2816

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3 and 6-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1 and 16 is/are allowed.
- 6) ☒ Claim(s) 3,6-15 and 17-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 6 and 11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The recitation “wherein the total number of the off-chip drivers to be activated at the same time is determined by the respective control signals” is not disclosed in the specification. Page 6, lines 19-20 discloses that “two of the eight off-chip drivers constituting the off-chip driver circuit 100 are turned on”. Therefore, the off-chip drivers are not activated at the same time.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 3, 6-15 and 17-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Correction and/or clarification is required.

Regarding claim 3, the recitation “An off-chip driver circuit, comprising: a plurality of off-chip drivers for respectively receiving a data signal and generating a plurality of output signals, respectively, in response to respective control signals; and a plurality of delay circuits at least two of which have different delay times with respect to each other, in which the delay circuits respectively receive the output signals and generate delayed output signals, respectively” is indefinite because of the following reasons:

- a. “an off-chip driver” cannot comprise a plurality of off-chip drivers.

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b. the off-chip drivers generate a plurality of output signals (out1-outN). Figure 2 of the present application shows that the delay circuits receive the input data (DATA) instead of the “a plurality of output signals” (out1-outN) of the “a plurality of off-chip drivers” as recited.

Regarding claims 6 and 11, the recitation “wherein the total number of the off-chip drivers to be activated at the same time is determined by the respective control signals” in lines 12-13 is indefinite because it is misdescriptive. Figure 2 of the present application shows that the off-chip drivers receive different control signals and these control signals do not activate the off-chip drivers at the same time.

Regarding claim 11, the recitations “a plurality of off-chip drivers for respectively receiving a data signal and generating a plurality of output signals, respectively, in response to respective control signals” and “a plurality of delay circuits at least two of which have different delay times, in which the delay circuits respectively receive the output signals and generate delayed output signals, respectively” on lines 2-6 are indefinite because it is misdescriptive. Figure 2 of the present application shows that the delay circuits receive the input data (DATA) instead of the “a plurality of output signals” (out1-outN) of the “a plurality of off-chip drivers” as recited. The recitation “the output driver circuit connected to the output terminals of the delays circuits and the pre-driver circuits” on lines 8-9 is indefinite because it is misdescriptive. Figure 2 of the present application shows that the output driver circuit (300) is only connected to the output terminals of the pre-driver circuits”.

Regarding claim 14, the recitation “the output driver circuit comprises output drivers connected to output terminals of the delay circuits and the pre driver circuit respectively” is indefinite because it is misdescriptive. Figure 2 of the present application circuit shows that the output driver circuit (300) is connected to output terminals of the pre driver circuit (200) and the off-chip driver circuit (100).

Claims 7-10 and 12-15 and 17-19 are indefinite because of the technical deficiencies of claims 3, 6 and 11.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 6, 7, 9, 11, 12 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Saeki (US 6,396,318).

Regarding claims 6, 7, 9, 11, 12 and 14, figure 2 and 4 show a data output circuit, comprising:

a plurality of delay circuits (X1...X12), at least two of which have different delay times with respect to each other, in which the delay circuits receive a data signal (CLOCK SIGNAL) and generate delayed data signals (T21-T27), respectively;

a plurality of off-chip drivers (LAT103... LAT103) for respectively receiving the delayed data signals from the respective delay circuits and generating respective output signals in response to respective control signals (CLOCK SIGNAL/);

a pre-driver circuit (X16, LAT103, Encoder 104) adapted to receive the data signal and drive an output driver circuit; and

the output driver circuit (Fig.4) connected to the output terminals of the off-chip drivers and the pre-driver circuit;

“wherein the total number of the off-chip drivers to be activated at the same time is changed by the respective control signals which are generated in response to a desired drivability, and the activated off-chip drivers sequentially generate the output signals in response to the delay times, thereby increasing a total drivability of the off-chip drivers”.

The output of the pre-driver circuit has logic low and high levels thus, the pre-driver circuit has a pullup/down function. Figure 4 of Saeki shows the output drivers (MN11-MN14).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saeki (US 6,396,318).

Regarding claims 10 and 15, figures 2 and 4 of Saeki includes all the limitations of claim 10 except for the limitation that the drivabilities have the values of “80%, 60% and 140%” of the target drivability. However, it is old and well known and it would have been an obvious matter of preference bounded by well known manufacturing constraints and ascertainable by routine experimentation and optimization to choose the particular claimed relative predetermined value of a differential input voltage limitations because applicant has not disclosed that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical, and it appears *prima facie* that the process would possess utility using another relative predetermined value of a differential input voltage. Indeed, it has been held that optimization of range limitations are *prima facie* obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. See MPEP 2144.05(II): “Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. ‘[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.’” In re Aller, 220 F.2d 454, 105 USPQ 233, 235 (CCPA 1955). See also In re Hoeschele, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969), Merck & Co. Inc. v. Biocraft Laboratories Inc., 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989), and In re Kulling, 897 F.2d 1147, 14 USPQ2d 1056 (Fed. Cir. 1990). As set forth in MPEP 2144.05(III). Therefore, it would have been obvious to one having ordinary skill in the art to select the drivabilities having the values of “80%, 60% and 140%” of the target drivability dependent upon particular environment of use to ensure optimum performance.

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Allowable Subject Matter

Claims 1 and 16 are allowed because records fails to teach or suggest an off-chip driver circuit comprising an off-chip driver including first and second inverters and an NAND gate as called for in claim 1.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hiep Nguyen whose telephone number is (571) 272-1752. The examiner can normally be reached on Monday to Friday from 7:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on (571) 272-1740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Hiep Nguyen

11-02-06



TUANT.LAM
PRIMARY EXAMINER